

## ***LKTA* DELETION MUTANT OF *P. HAEMOLYTICA***

### ABSTRACT OF THE DISCLOSURE

Mutants of *P. haemolytica* provide excellent safety and efficacy when used as vaccines in ruminants, for example cattle, sheep, and goats, subject to pneumonic pasteurellosis. They can be administered by a variety of routes. Especially preferred is the use in animal feeds. The mutants are not reverting and contain no foreign DNA and no introduced antibiotic resistance genes.

Patent Pending